

Attachment 3

List of Wells Abandoned/Replaced



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SUPERFUND DIVISION

500 S W 7th Street
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Des Moines, IA 50309
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September 54, 2007

Ms. Mary P. Peterson
Project Manager
Iowa/Nebraska Branch
Superfund Division
United States Environmental Protection Agency
Region VII
901 North 5th Street
Kansas City, KS 66101

**RE: Final Monitoring Well Impacts
at the Des Moines TCE Superfund Site
Activity ID No. 28-2001-047**

Dear Ms. Peterson:

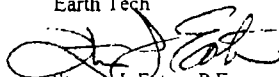
Please find enclosed a location map showing the final monitoring well impacts at the Des Moines TCE Superfund Site caused by the construction of the Martin Luther King, Jr. Parkway Project and the Raw Water Main Relocation Project. In all, seven (7) monitoring wells and four (4) piezometers were impacted. Four (4) wells and two (2) piezometers were replaced during construction as required in the Third Supplement to the Technical Proposal and Plan of Action. (Copy of Attachment 2, Revised Page 1 is attached.) The following list shows the wells and piezometers that were abandoned, as well as those that were replaced.

<u>Wells and Piezometers Abandoned</u>	<u>Replacement Wells and Piezometers</u>
P-2	P-2A, P-2B
P-3	
P-4	P-4R
P-12	
EW-3	
EW-9	
NW-9	NW-9R
NW-11	
NW-15	NW-15R
NW-25	NW-25R
NW-29	NW-29R

Please note that piezometer P-2 was replaced under both construction projects. Both replacement piezometers may be used for testing purposes.

If you have any questions or need additional information, please feel free to contact our office at your convenience.

Very truly yours,

Earth Tech

Steven J. Eaton, P.E.

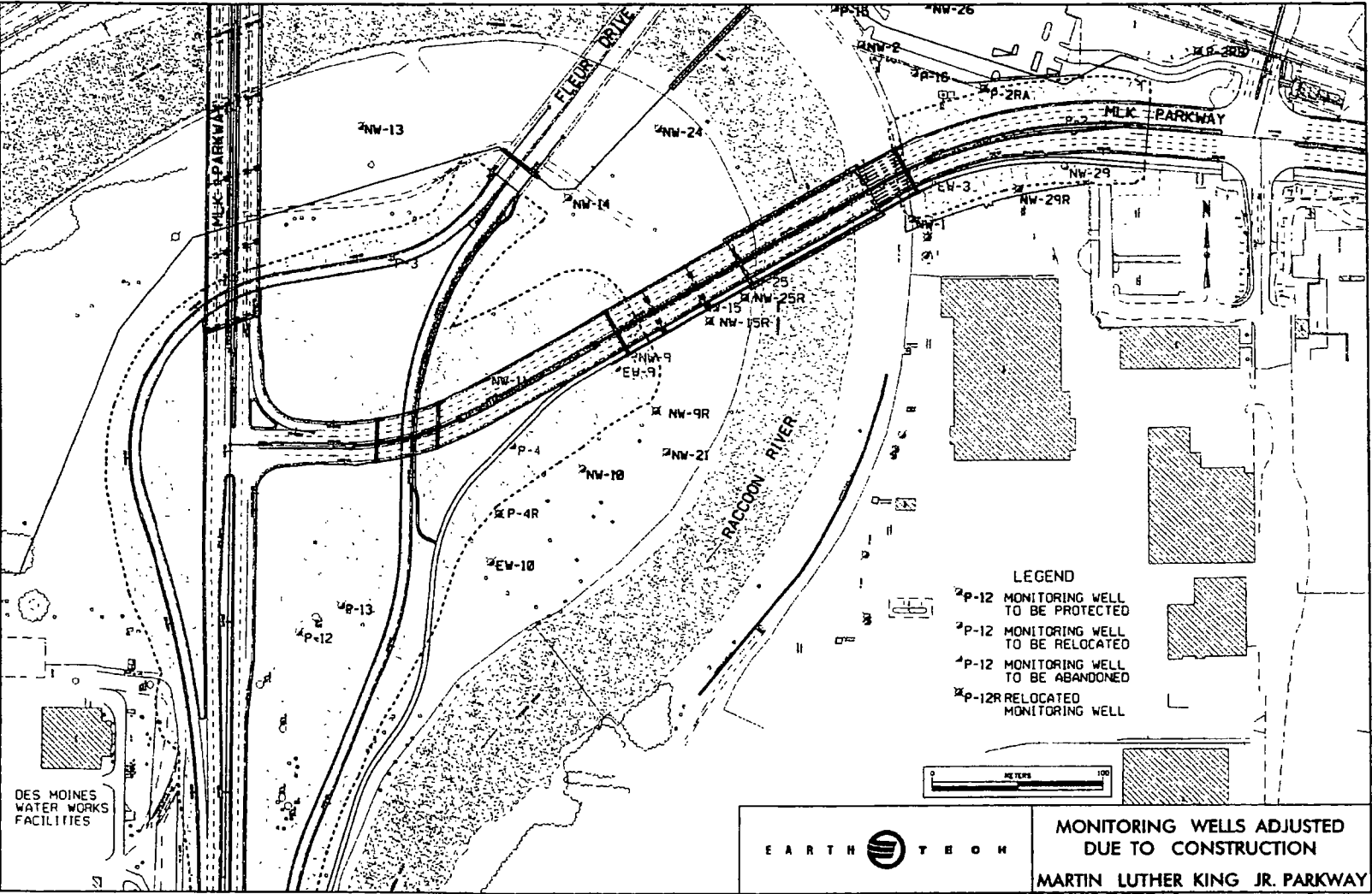
Enclosures: As noted

cc Mr. Jeb Brewer, City of Des Moines (w/attachments)

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


DATE: Wed Sep 05 09 51:08 2007

PRJ: G:\100\Monwell_05-07-07\PA.dwg
D:\L:\proj\05273\code\monwell_05-07-07\PA.dwg



DES MOINES
WATER WORKS
FACILITIES

LEGEND

-  P-12 MONITORING WELL
TO BE PROTECTED
-  P-12 MONITORING WELL
TO BE RELOCATED
-  P-12 MONITORING WELL
TO BE ABANDONED
-  P-12R RELOCATED
MONITORING WELL



EARTH TECH

MONITORING WELLS ADJUSTED
DUE TO CONSTRUCTION
MARTIN LUTHER KING JR. PARKWAY



• 2030 Castleman Drive • Nashville • Tennessee • 37215 •
• 615.463.0026 • 615.463.0109 (facsimile) •

~~NOV 14 2003~~
NOV 14 2003
SUPERGLD DIVISION

October 30, 2003

Mr. Dan Butters
Environmental Manager
Titan International, Inc
2345 East Market Street
Des Moines, Iowa 50317

Re Well Abandonment Reports
Dico Facility, Des Moines, Iowa

Dear Mr. Butters

Environmental Management and Engineering, Inc (EME) and its Iowa-based drilling subcontractor, Allender Butzke Engineers, Inc., have completed the abandonment of twenty-two groundwater monitoring wells at the Dico Facility in Des Moines, Iowa. Well abandonment activities were performed in accordance with EME's proposal, dated March 31, 2003, the USEPA-approved July 2, 2003 Work Plan for the Proposed Modifications of the Des Moines TCE Site (Work Plan) and the Iowa Department of Natural Resources's (DNR) Guidelines for Plugging Abandoned Water Wells, Technical Information Series 15, dated October 1988. Specifically, wells were abandoned by filling the well casing with a flowable bentonite grout slurry. The bentonite grout slurry was injected into the bottom of the wells using a grout pump and flexible tremie pipe. The grout column was brought to within several feet of ground surface. Then, the protective steel risers and upper three feet of PVC casing were removed and the upper portion of the well boring was plugged to grade with either granular bentonite or Portland cement concrete. All of the wells listed in Table 1 were abandoned between October 6 and October 8, 2003. Per our previous discussions, a magnetometer was used to try to locate the four missing groundwater monitoring wells -- wells P-3, P-14, EW-10, and MW-26. Our efforts were unsuccessful and these wells were not abandoned. Table 1 lists all of the wells that were abandoned.

Abandoned Water Well Plugging Records (DNR Form 542-1226) have been completed for each well and have been signed by an Iowa Certified Well Contractor. However, as the well owners' representative, you will need to complete Section 1 on each form and sign the shaded certification section. A copy of this letter and the completed and signed abandonment forms should be submitted to the Water Supply Section of the DNR at 900 East Grand Avenue, Des Moines, Iowa 50319-0034 by November 7, 2003. A copy of this report should also be forwarded to Ms. Mary Peterson of the USEPA, Region VII.

Table 1
Summary of Well Abandonment Details

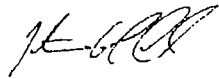
	Well	Well Depth	Depth of Casing	Depth to Water	Casing Dia.	Date Installed	Casing Materials	Type of Construction
1	P-5	40.5	40.0	20	2"	1984	plastic	drilled
2	P-6	42.6	42.0	20	2"	1984	plastic	drilled
3	P-7	38.0	37.5	20	2"	1984	plastic	drilled
4	P-8	39.1	38.5	20	2"	1984	plastic	drilled
5	P-10	41.0	40.5	20	2"	1987	plastic	drilled
6	P-11	30.0	29.5	20	2"	1987	plastic	drilled
7	P-12	28.5	28.0	20	2"	1987	plastic	drilled
8	P-15	45.0	45.0	20	2"	1987	plastic	drilled
9	P-16	50.0	50.0	20	2"	1987	plastic	drilled
10	P-17	35.5	35.0	20	2"	1987	plastic	drilled
11	EW-8	35.0	35.0	20	3"	1982	plastic	drilled
12	NW-3	35.0	35.0	20	2"	1984	plastic	drilled
13	NW-4B	30.0	30.0	20	2"	1984	plastic	drilled
14	NW-5	43.0	42.5	20	2"	1984	plastic	drilled
15	NW-12A	49.5	49.0	20	2"	1984	plastic	drilled
16	NW-12B	40.0	40.0	20	2"	1984	plastic	drilled
17	NW-13	38.4	38.0	20	3"	1984	plastic	drilled
18	NW-16	46.9	46.0	20	3"	1984	plastic	drilled
19	NW-17	39.0	39.0	20	3"	1984	plastic	drilled
20	NW-18	38.5	38.0	20	2"	1984	plastic	drilled
21	NW-21	35.0	35.0	20	2"	1987	plastic	drilled
22	NW-28	45.0	45.0	20	2"	1987	plastic	drilled



Mr. Dan Buttars
Well Abandonment Reports
October 31, 2003
Page 3

EME appreciates the opportunity to provide our services and we look forward to working with you again in the future. If you have any questions regarding the information contained within this abandonment report, please contact me at 615.463.0026 or by e-mail at qmacdonald@emeciu.com.

Sincerely,
Environmental Management and Engineering, Inc.



Quintin G. Macdonald, PG
Project Manager

enc.

.cc:
Gazi George



Attachment 4
Site Documents Reviewed

Attachment 4
Fourth Five Year Review
Des Moines TCE Site

Documents Reviewed

Document Title	Author	Date
Third Five Year Review	Black and Veatch for EPA	December 31, 2002
OU1 Record of Decision	EPA	July 1986
OU3 Record of Decision	EPA	September 1992
OU2/4 Record of Decision	EPA	December 1996
Unilateral Administrative Order for OU1 RD/RA	EPA	July 1986
Unilateral Administrative Order for OU4 – Buildings Encapsulation Action	EPA	March 1994
Unilateral Administrative Order for OU4 – Capping Action	EPA	June 1994
Administrative Order on Consent for OU4 South Pond Area	EPA and Dichem Customer Group	December 1995
Performance Evaluation Report No. 17	Dico	July 2003
Performance Evaluation Report No. 18	Dico	July 2004
Performance Evaluation Report No. 19	Environmental Management and Engineering, Inc. for Dico	July 2005
Performance Evaluation Report No. 20	Environmental Management and Engineering, Inc. for Dico	January 2007
Performance Evaluation Report No. 21	Environmental Management and Engineering, Inc. for Dico	July 2007
Work Plan for Proposed Modifications	Dico	July 2, 2003
OU2/4 Annual Cap Inspection Reports	Dico	2003-2007
OU2/4 Building Inspection Letters	Dico	2003-2007
Technical Progress Report on Groundwater Monitoring for the North Plume Site	IDNR	January 2006

Technical Progress Report on Groundwater Monitoring for the North Plume Site	IDNR	October 2007
Final Monitoring Well Impacts	Earth Tech for City of Des Moines	September 2007
Well Abandonment Report	Environmental Management and Engineering for Dico	October 2003
South Pond Sampling data	University of Iowa Hygienic Laboratory for IDNR	September 2007

Attachment 5
Changes in Chemical-Specific Standards

Attachment 5
 Fourth Five Year Review
 Des Moines TCE Site

Changes in Groundwater Chemical-Specific Numeric Standards

Contaminant	Standard (ug/L)		Citation
Chloroform	OU1 ROD	100	MCL. SDWA
	New	80	MCL. SDWA
Trans 1,2-DCE	OU1 ROD	None	MCL. SDWA
	New	100	MCL. SDWA
1,2-Dichloropropane	OU1 ROD	None	MCL. SDWA
	New	5	MCL. SDWA
PCE	OU1 ROD	None	MCL. SDWA
	New	5	MCL. SDWA
Vinyl Chloride	OU1 ROD	1	MCL. SDWA
	New	2	MCL. SDWA

Attachment 6
Cumulative Summary of OU3 Data

TABLE 2: CUMULATIVE SUMMARY OF CONTAMINANT LEVELS (µg/l) IN DES MOINES TCE OU3 MONITORING WELLS

Sample Date	Parameter	NW-30	NW-31	NW-32	NW-34	NW-35	NW-36	NW-39	NW-40
July 1989	PCE	ND	ND	ND	4J	170	8J	--	--
	TCE	ND	ND	ND	1J	54J	2J	--	--
	DCE	ND	ND	ND	ND	24J	0.8J	--	--
Aug. 1989	PCE	0.7J	ND	ND	4	94	2	--	--
	TCE	ND	ND	ND	1	32	ND	--	--
	DCE	ND	ND	ND	ND	17	ND	--	--
Sept. 1989	PCE	ND	ND	ND	3J	138J	ND	--	--
	TCE	ND	ND	ND	ND	29J	ND	--	--
	DCE	ND	ND	ND	ND	14J	ND	--	--
Oct. 1989	PCE	ND	ND	ND	2	150J	ND	--	--
	TCE	ND	ND	ND	ND	42	ND	--	--
	DCE	ND	ND	ND	ND	22	ND	--	--
Jan. 1990	PCE	ND	ND	ND	3	350	0.7J	--	--
	TCE	ND	ND	ND	0.7J	100	ND	--	--
	DCE	ND	ND	ND	ND	48	ND	--	--
March 1990	PCE	ND	ND	ND	2	330	ND	--	--
	TCE	ND	ND	ND	ND	90	ND	--	--
	DCE	ND	ND	ND	ND	59	ND	--	--
April 1990	PCE	ND	ND	ND	2	185	1	--	--
	TCE	ND	ND	ND	ND	44	ND	--	--
	DCE	ND	ND	ND	ND	28.5	ND	--	--
Sept. 1990	PCE	ND	ND	ND	ND	335	ND	--	--
	TCE	ND	ND	ND	ND	88.5	ND	--	--
	DCE	ND	ND	ND	ND	54J	ND	--	--
Dec. 1990	PCE	ND	ND	ND	2	315	ND	--	--
	TCE	ND	ND	ND	ND	82.5	ND	--	--
	DCE	ND	ND	ND	ND	44.5	ND	--	--
June 1991	PCE	ND	ND	ND	ND	97.5	ND	3.2	5.4
	TCE	ND	ND	ND	ND	22	ND	5.1	2.6
	TCE	ND	ND	ND	ND	11	ND	20	7.7
Sept. 1991	PCE	ND	ND	ND	1.7	21J	ND	4.2J	1.1
	TCE	ND	ND	ND	ND	23J	ND	3.8J	ND
	DCE	ND	ND	ND	ND	14	ND	ND	3.0

TABLE 2 (Cont.): CUMULATIVE SUMMARY OF CONTAMINANT LEVELS (µg/l) IN DES MOINES TCE OU3 MONITORING WELLS

Sample Date	Parameter	NW-30	NW-31	NW-32	NW-34	NW-35	NW-36	NW-39	NW-40
Apr. 1996	PCE*	ND	ND	ND	ND	--	ND	7	ND
	TCE*	ND	ND	ND	ND	--	ND	ND	ND
	DCE*	ND	ND	ND	ND	--	ND	ND	ND
	VC*	ND	ND	ND	ND	--	ND	ND	ND
Oct. 1996	PCE*	ND	ND	ND	ND	44	ND	5 (7)	17
	TCE*	ND	ND	ND	ND	16	ND	4J (5J)	ND
	DCE*	ND	ND	ND	ND	5J	ND	ND(ND)	ND
	VC	ND	ND	ND	ND	ND	ND	ND(ND)	ND
May 1997	PCE	ND	ND	ND	ND	22 (16)	ND	6	ND
	TCE	ND	ND	ND	ND	10 (8)	ND	4	ND
	DCE	ND	ND	ND	ND	4 (3)	ND	ND	ND
	VC	ND	ND	ND	ND	ND(ND)	ND	ND	ND
Nov. 1997	PCE	ND	ND	ND	ND	26	ND	--	2 (2)
	TCE	ND	ND	ND	ND	8	ND	--	ND(ND)
	DCE	ND	ND	ND	ND	3	ND	--	1 (1)
	VC	ND	ND	ND	ND	ND	ND	--	1 (1)
May 1998	PCE	ND	ND	ND	ND	31	ND	--	3
	TCE	ND	ND	ND	ND	8	ND	--	ND
	DCE	ND	ND	ND	ND	3	ND	--	2
	VC	ND	ND	ND	ND	ND	ND	--	ND
May 1999	PCE	ND	ND	ND	ND	140(130)	ND	--	1
	TCE	ND	ND	ND	ND	36 (40)	1	--	ND
	DCE	ND	ND	ND	ND	20 (21)	2	--	ND
	VC	ND	ND	ND	ND	ND(ND)	ND	--	ND
April 2000	PCE*	ND	ND	ND	ND	67	ND	--	ND(ND)
	TCE*	ND	ND	ND	ND	42	ND	--	ND(ND)
	DCE*	ND	ND	ND	ND	18	ND	--	ND(ND)
	VC*	ND	ND	ND	ND	ND	ND	--	ND(ND)
July 2001	PCE	ND	ND	ND	ND	170(120)	ND	--	2
	TCE	ND	ND	ND	ND	65 (63)	3	--	ND
	DCE	ND	ND	ND	ND	28 (25)	5	--	ND
	VC	ND	ND	ND	ND	ND(ND)	ND	--	ND
Sept. 2002	PCE	ND	ND	ND	ND	130(130)	ND	--	ND
	TCE	ND	ND	ND	ND	40 (41)	4	--	ND
	DCE	ND	ND	ND	ND	18 (18)	10	--	ND

NOTES: ND = Not detected at detection limit.

J = The associated value is an estimate

* Detection limit = 5 µg/l

-- = Indicates no sample was collected.

TABLE 2 (Cont.): CUMULATIVE SUMMARY OF CONTAMINANT LEVELS ($\mu\text{g/l}$) IN DES MOINES TCE OU3 MONITORING WELLS

Sample Date	Parameter	NW-30	NW-31	NW-32	NW-34	NW-35	NW-36	NW-39	NW-40
Nov. 2004	PCE	--	<0.5	<0.5	<0.5 (J)	21 (22)	1.5	--	<0.5 (J)
	TCE	--	<0.5	<0.5	<0.5 (J)	9.9 (11)	18	--	<0.5 (J)
	DCE	--	<0.5	<0.5	<0.5	3.0(3.3)	20	--	<0.5 (J)
	VC	--	<0.5	<0.5	<0.5	<0.5	<0.5 (J)	--	<0.5
Oct. 2005	PCE*	<5	<5	<5	<5	22 (20)	<5	--	<5
	TCE*	<5	<5	<5	<5	13 (10)	<5	--	<5
	DCE*	<5	<5	<5	<5	<5 (<5)	<5	--	<5
	VC*	<5	<5	<5	<5	<5 (<5)	<5	--	<5
Sept. 2007	PCE	<0.5	<0.5	<0.5	0.7	25 (23)	<0.5	--	<0.5 (J)
	TCE	<0.5	<0.5	<0.5	<0.5 (J)	7.3 (7.4)	1.9	--	<0.5
	DCE	<0.5	<0.5	<0.5	<0.5	2.1(2.1)	4.2	--	<0.5
	VC	<0.5	<0.5	<0.5	<0.5	<.5(<.5)	<0.5 (J)	--	<0.5

NOTES: ND = Not detected at detection limit.

* Detection limit = 5 $\mu\text{g/l}$

J = Compound detected below quantification limit.

-- = Indicates no sample was collected.

Attachment 7
Site Inspection Report

Site Inspection Report

Des Moines TCE Site
September 2007

Prepared by:

Mary Peterson
Project Manager
IANE/SUPR

Introduction

In support of a Five Year Review, a site inspection was conducted on September 19, 2007. The site inspection included an interview with a representative of the site owner, review of all remedial actions at the site including operable units (OUs) 1-4, a walk-through inspection of all operating equipment, monitoring wells, buildings, and affected property. The inspection also included sampling of sediments around the South Pond overflow area and groundwater sampling of the OU3 monitoring wells.

Participants

People who participated in the site inspection are listed below.

Mary Peterson, EPA Region 7
Bob Drustrup, IDNR
Hilton Jackson, IDNR
Doug Pospisil, Dico
Brian Mills, Dico
Louis Barrentine, EME

Description of Activities

OU1: The mechanical equipment associated with the operating extraction wells (EW-5, 6, and 7) and the air stripper was inspected. The chemical injection system to control iron fouling was moved to EW-5. Dico has recommended shutting down EW-5. EPA indicated to the Dico representative that if EW-5 is removed from service, then the chemical feed system should be moved to EW-6.

The flow rate from EW-7 has been extremely low in recent months. Brian Mills with Dico stated that he believes the cause is a bad flow meter which is due to be replaced in the near future. Mary Peterson suggested that if the new flow meter does not solve the problem, then the well screens in the extraction wells should be examined for fouling and possibly cleaned to increase their production rates. This recommendation will be noted in a letter to Dico.

The air stripping tower remains in good condition. The tower packing was replaced within the last two years. Given the reduced total system flow, the current stripping tower and blower are over-sized. It was discussed that when the tower packing needs replacing again, or when any other major equipment repair is needed, Dico should consider replacing the tower with a tray air stripper and smaller blower that would be more appropriately sized for the reduced flow rate. This suggestion will be noted in a letter to Dico.

The monitoring well network was inspected. Brian Mills indicated that MH1-S was damaged during construction of the Martin Luther King Parkway and he has e-mail correspondence with the city that he will forward to Mary Peterson. All other monitoring wells appeared to be in good condition. A few of the replacement wells installed by the city do not have protective posts around them. Brian Mills indicated that all well locks were recently replaced.

OU2/OU4: The buildings, the asphalt cap, and the South Pond drainage area and ditch east of the site were included in the inspection of OU2 and OU4. The most notable change is the demolition of building 4/5. Dico indicated that the building support structures are being sold and will be erected at another site. Sheet metal will be recycled and other materials will be sent offsite for disposal. The concrete foundation will remain in place. Louis Barrentine indicated that he will provide documentation to EPA regarding the disposition of materials leaving the site. Photographs 1, 2, and 3 depict building 4/5 in the process of demolition.

All other buildings remain intact. However, all windows have been broken out and most doors have been knocked in. Approximately 18 months ago, Dico erected a six foot chain link fence with barbed wire across the top to prevent trespassers from accessing the buildings on the property. Photograph 4 shows the fence and the Production building with the guard shack in the foreground. Photograph 5 depicts the general condition of the buildings at the site. Photograph 6 shows buildings 1-3 and the Maintenance building.

The asphalt cap remains in fair condition. Evidence of repairs was noted during the site inspection. Given that there is very little traffic on the site, the cap remains in good condition and requires little maintenance.

The South Pond area and drainage ditch east of Dico were inspected. The South Pond was full and stagnant with a thick layer of algae on the surface (see photograph 7). The overflow area contained water. Sediments from the overflow area were collected by IDNR and will be analyzed for pesticides of concern. The drainage ditch east of the Dico property was also full and stagnant with algae growing on the surface (see photograph 8).

OU3: The Iowa Department of Natural Resources (IDNR) performs the operation and maintenance of OU3. The IDNR conducted a monitoring event of the OU3 well network and will provide analytical results for inclusion in the Five Year Review Report.

Follow-up Items

1. Send IDNR a copy of the Performance Evaluation Report No. 21.
2. Contact city regarding repair of monitoring well MH1-S.
3. Send a letter to Dico regarding the disposition of demolition debris from building 4/5, extraction system maintenance items, and responding to recommendations in the PER No. 21 report.
4. Contact city economic development office to get an update on the status of the Riverpoint West redevelopment project.
5. Consider an update of the risk assessment for soil exposures to evaluate potential future uses, and to incorporate any new risk assessment guidelines established since the original risk assessment was completed.



Dico Building 4/5 demolition; view to the east
9/19/07



Dico Building 4/5 demolition; view to the south
9/19/07



Dico Building 4/5 demolition; view to the northwest
9/19/07



Dico Production Building; view to the east
Shows new security fencing and guard shack
9/19/07